

NEW JERSEY'S LEADERSHIP IN TRANSPORTATION DEVELOPMENT

*Model of Newark Airport*  
*Airport: Bndate*  
*Argons*  
*Barrier curb*

In 1891 New Jersey becomes the first state to grant monetary aid for building public roads. The legislative act that accomplished this provided aid to the counties in the construction of highways to the extent of one-third of their cost. The state aid bill was a milestone in the history of highway administration in the United States. (1, 15, 16)

The first road sheet asphalt pavement was laid in Newark in 1870. (18)

The Trenton-Delaware Bridge, built in 1806, was the first in the country to be used in inter-state railroad traffic. (2)

In 1912 New Jersey laid one of the first concrete highways in the east. It was a 4800 foot stretch of Route 57 between Stewartsville and New Village. The original pavement was only 18 feet wide at that time. (22, 23)

In the winter of 1919-20, New Jersey began snow removal work on state highways. (24).

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In 1925 New Jersey was the first state to beat congestion at busy intersections with a new design called the "traffic circle." (6)

The Holland Tunnel passing under the Hudson River opened to traffic in 1927 as the nation's first major subaqueous vehicular tunnel. (14)

In 1929 New Jersey was the first state to build the famous "clover-leaf" intersection on Rt. 1 and 35 in Woodbridge. An innovation in highway design which proved to be a great improvement for safety and time savings. (18)

When trouble was experienced with joints in concrete pavements back in 1931, New Jersey led the way in research to develop effective joint fillers. The study paid off in extended pavement life and tax dollar savings. (26)

In 1933, the New Jersey State Highway Department recognized the fact that the concrete slabs did not retain their grade exactly and between slabs (at the joints) there was a sharp rise or fall. In 1934, New Jersey was the first state to use a practice of raising the slabs to produce a smooth riding pavement. This was done by forcing natural soil saturated with water under the concrete slab.

The pressure of this mud raised the slab, thus the term "mud jacking."  
(C. Edson) (25)

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New Jersey's development of a special reflecting curb, in 1933, for use on highway islands was an innovation that aroused a great deal of interest throughout the country by the early 1940s.

(H. Englishman) (27)

Back in 1938 New Jersey was the first state to experiment with and implement singing pavement strips. Two foot wide strips of corrugated pavement were used to separate traffic lanes. A motorist which would inadvertently wander off his lane would be alerted by the zinging noise created by the vehicle's wheels riding on the corrugated surface. (H. Englishman)

In 1941 New Jersey began to dabble in research aimed at improving visibility of highway signs at night. A new type of letter surface was devised by New Jersey engineers consisting of a field of small pyramids designed to dispense the light and thus eliminate glare.  
(27)

In 1949 New Jersey developed the famous center barrier. The New Jersey barrier curb is now used extensively on highways throughout New Jersey and 19 other states. Another 25 states use modifications of the design pioneered by the New Jersey Highway Department. (13, 19)

In the early 1950s New Jersey was the first state to hydraulically move a roadway. Concrete slabs on Route 1 between New Brunswick and Princeton Junction were hydraulically jacked and moved approximately





30 feet in order to create an island between the north and southbound lanes. This was accomplished in an attempt to separate opposing lanes of traffic to reduce the likelihood and severity of head-on collisions. (H. Englishman)

In 1952 New Jersey pioneered the application of jughandle construction on highways. Where conditions prohibit the building of a left turning slot, the jughandle can channel left turning vehicles off to the right so that they can subsequently cross under traffic signal protection. (6, 7), (20)

In 1954, New Jersey was the first state in the nation to use a white reflective line to delineate the outer edge of the highway. At first, white stripes were painted on blacktop highways; public reaction was so strongly in favor that the program was expanded to include all state highways regardless of surface. Today, it is mandatory that all highways be white striped before being opened to traffic. (4, 7)

In the late 1950s New Jersey was the first state to install fluorescent lighting fixtures in the side railings of an intercoastal waterway bridge. This innovation in bridge lighting provided continuous glare-free illumination at levels where negative effects of seashore fog would be minimized. (5)





New Jersey was the first state in the nation to realize the need for an integrated approach to all transportation problems when it established the Department of Transportation in 1966. Under the Transportation Act of 1966, the newly created Department of Transportation absorbed the functions of the state highway department as well as the Bureau of Aeronautics, which was transferred from the Department of Conservation and Economic Development. (17)

In 1967 New Jersey was the first state to implement a comprehensive maintenance management system consequentially resulting in greater productivity and efficiency. Today with the aid of computers, we have one of the finest maintenance systems in the nation. (C. Edson)

In 1967 New Jersey stepped forward in the development of a comprehensive accident analysis process with the installation of milepost signs throughout the state highway system. (11)

In the winter of 1968-69, New Jersey was the first state to develop an optimum chemical pre-mix for snow removal. A sodium and calcium chloride mixture and rate of application was designed to achieve a bare-pavement condition in a minimum amount of time and minimum amount of materials. (C. Edson) (21)

A significant contribution to safety was made in 1969 with the development of the breakaway coupling for large highway signs. This device can support a sign in gale-force winds yet snap under horizontal impact.





In 1967 New Jersey was instrumental in the development of a snow plowable raised reflective pavement marker. Installations at several hazardous locations have shown that this device can substantially improve lane visibility, especially on rainy nights. The device is presently scheduled for extensive application throughout the state. (M. Roberts)

In 1976 New Jersey developed and installed the first traffic metering system to control congestion at busy traffic circles. Since the first installation at the White Horse Circle, the accident rate has dropped and the need for constant police surveillance during peak hours has been eliminated. (8)

In the decade between 1967-1977, New Jersey has been rated in the top four states with the lowest highway fatality rate. In 1976 and 1977 New Jersey roads had the lowest rate of all states in the nation. (12)

New Jersey highways always had the distinction of having the highest traffic density in the world, some as much as seven times the national average. (3)





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